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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/898,799

07/03/2001

Xiao-An Zhang

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5646

7590

02/17/2004

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
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EXAMINER

THOMPSON, TIMOTHY J

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/898,799

Applicant(s)

ZHANG ET AL.

Examiner

Timothy J Thompson

Art Unit

2873

-- Th MAILING DATE of this communication app ars on the cover sh t with th correspond nce address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-16 is/are allowed.
- 6) ☒ Claim(s) 17, 24 and 27-32 is/are rejected.
- 7) ☒ Claim(s) 18-23, 25, 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

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## **DETAILED ACTION**

### **Terminal Disclaimer**

The terminal disclaimer was received and approved.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17, 24, 27 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Theiste et al.(U.S. Patent No. 6,249,369).

Regarding claim 17, Theiste et al. discloses an electric field activated molecular system configured within an electric field generated by a pair of electrodes, said molecular systems having at least one rotor portion connected to at least one stator portion, wherein the at least one rotor portion connected to at least one strator portion, wherein the at least one rotor portion rotated with respect to the at least one stator portion between at least two different states upon application of the electric field, thereby inducing a color change in the molecular system, wherein in a first state, there is extended conjugation through out the molecular system, resulting in a first color state, and wherein in a second state, the extended conjugation is destroyed, resulting in either a transparent state of a second color state(cols 1 and 2 and paragraphs 24-27).

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Regarding claim 24, Theiste et al. discloses the molecular system is bi-stable(cols 1 and 2 and paragraphs 24-27).

Regarding claim 27, Theiste et al. discloses the molecular system changes between a transparent state and a colored state(cols 1 and 2 and paragraphs 24-27).

Regarding claim 28, Theiste et al. discloses the molecular system changes between one colored state and a colored state(cols 1 and 2 and paragraphs 24-27).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Theiste et al.(U.S. Patent No. 6,249,369) as applied to claim 17 above, and further in view of Komiya(U.S. Patent No. 4,481,588).

Regarding claims 29 and 31, Theiste et al. does not disclose a rotor and a strator or one rotor connected between two stators, infact Theiste et al. does not disclose the specific configuration of the rotor and stator. However, Komiya discloses one rotor(fig 3, 7C) connected between two stators(fig 3, 7a, 7b). It would have been obvious to one skilled in the art to use one rotor connected between two stators as shown by Komiya,

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in the display device of Theiste et al., since as shown by Komiya one rotor connected between two stators is commonly used for a switch which provides an output voltage.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Theiste et al.(U.S. Patent No. 6,249,369) as applied to claim 17 above, and further in view of Reichen et al.(U.S. Patent No. 4,166,200).

Regarding claims 29 and 31, Theiste et al. does not disclose two rotors connected to one strator. However, Reichen et al.discloses two rotors(fig 11, 124, 126) connected to one strator(fig 11, 128). It would have been obvious to one skilled in the art to use two rotors connected to one strator as shown by Reichen et al., in the display device of Theiste et al., since as shown by Reichen et al. two rotors connected to one strator is commonly used as a switching device.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Theiste et al.(U.S. Patent No. 6,249,369) as applied to claim 17 above, and further in view of Hoffman(U.S. Patent No. 4,827,604).

Regarding claims 29 and 31, Theiste et al. does not disclose an alternating rotor and a strator. However, Hoffman discloses an alternating rotor and a strator (fig 1, 50, 100). It would have been obvious to one skilled in the art to use an alternating rotor and a strator as shown by Hoffman, in the display device of Theiste et al., since as shown by Hoffman an alternating rotor and a strator is commonly used as a switching device.

***Allowable Subject Matter***

Claims 18-23, 25, 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With the impor features being the orientation of the rotor is perpendicular or parellel to the axis; the exact structure of the molecule; a low activation barrier between two states; the color is changed abruptly by the application of the voltage pulses to a switch with at least one activation barrier.

Claims 1-16 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art taken either singularity or in combination fails to anticipate or fairly suggest the limitations of the independent claim, in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claim 1, with the allowable features being a a bandgap change in the molecular system, wherein in a first state, there is extended conjugation throughout the molecular system, resulting in a relatively smaller band gap, and wherein in a second state, the extended conjugation is destroyed, resulting in a relatively larger band gap(claim 1). Therefore claims 1-16 are allowed.

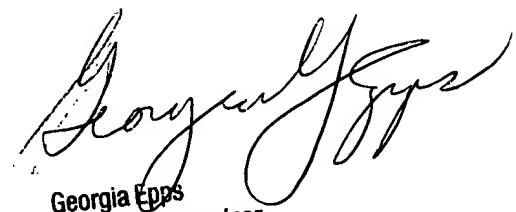
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Thompson whose telephone number is (703) 305-0881. If the examiner can not be reached his supervisor, Georgia Epps, can be reached on (703) 308-4883.



Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800